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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,643	02/06/2007	Johannes Gerardus Maria Schilder	TS1455US	4365

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EXAMINER	
MERKLING, MATTHEW J	
ART UNIT	PAPER NUMBER
1723	
MAIL DATE	DELIVERY MODE
11/18/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/580,643	SCHILDER, JOHANNES GERARDUS MARIA	
	Examiner	Art Unit	
	MATTHEW J. MERKLING	1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 October 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12 and 16-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12 and 16-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2 and 6-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Anderson (US 4,046,541).

Regarding claims 1 and 9, Anderson discloses reactor vessel (Fig. 2) comprising a reaction area (area above spray ring 126) and, disposed gravitationally lower than the reaction area, a slag water bath (107, see Fig. 2) for holding water and receiving char and/or slag from the reaction area (col. 4, lines 67 - col. 5 line 6), and

a spray ring (126), for wetting char and/or slag in a water bath with a wetting fluid (see Fig. 3 which illustrates the spray ring, and see abstract which discloses a slag cooling system), the spray ring (126) comprising a loop conduit arranged in a loop-line (see Fig. 3 which illustrates the spray ring 126 in the shape of a loop), which loop conduit is at an inlet point provided with an inlet for feeding the wetting fluid into the loop conduit in an inlet flow direction (see col. 6 lines 11-28 which discloses that the loop conduit 126 is fixed with a plurality of inlet conduits 125 that feed cooling fluid into the loop conduit), and with a plurality of outlet openings for spraying the wetting fluid out of the loop conduit (see col. 6 lines 32-37 which discloses that the loop conduit can include spray

nozzles for directing the cooling fluid into the gasifier), wherein the inlet flow direction has a component that is tangential to a loop-line flow direction of the wetting fluid through the loop conduit at the inlet point (see Fig. 3 which illustrates the tangential introduction of cooling fluid into the spray ring 126 from nozzles 125), and

said spray ring (126) being arranged above the water surface (107) of the water in the slag water bath (see Fig. 2).

Regarding claim 2, Anderson further discloses the loop conduit (126) forms a peripheral ambit around an encompassed area (see Fig. 2 and Fig. 3 which illustrate that spray ring 126 is circular loop that encompasses an area) and whereby the outlet openings are directed such that the outlet flow direction of the wetting fluid has a component directed inwardly towards the encompassed area (see col. 6 lines 32-37 which discloses that the loop conduit can include spray nozzles for directing the cooling fluid toward the center of the loop circuit/axis of the duct).

Regarding claim 6, Anderson further discloses a plurality of, preferably three or more (see Fig. 3 which illustrates a plurality of inlets), inlets are provided in a plurality of inlet points, whereby the inlet flow direction in each of the inlet points has a component that is tangential to the loop-line flow direction in each inlet point (see Fig. 3).

Regarding claim 7, Anderson further discloses the plurality of inlet points are equally distributed along the loop conduit (see Fig. 3).

Regarding claim 8, Anderson further discloses the included angle between the inlet flow direction and the loop-line flow in each inlet point is less than 80° (see Fig. 3 which

clearly illustrates an angle between the loop-line flow and the inlet flow direction is less than 80°).

3. Claims 1, 2, 4, 5, 9-12 and 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Segerstrom (EP 0318071 A1).

Regarding claims 1 and 9, Segerstrom discloses reactor vessel (Fig. 1) comprising a reaction area (area above spray ring 26) and, disposed gravitationally lower than the reaction area, a slag water bath (28, see Fig. 1) for holding water and receiving char and/or slag from the reaction area (col. 3, lines 36-42), and

a spray ring (26), the spray ring comprising a loop conduit arranged in a loop-line (see Fig. 5 which illustrates a spay ring), which loop conduit is at an inlet point provided with an inlet for feeding the wetting fluid into the loop conduit in an inlet flow direction (see Figs. 2 and 5 which illustrate an inlet point where fluid enters the spray ring from an inlet conduit), and with a plurality of outlet openings (12, see Fig. 5) for spraying the wetting fluid out of the loop conduit, wherein the inlet flow direction has a component that is tangential to a loop-line flow direction of the wetting fluid through the loop conduit at the inlet point (the inlet flow direction, which is viewed as being the flow direction of the fluid at or near the physical connection of the inlet pipe to the spray ring, will have at least a component of the flow direction that is tangential to the flow direction of the loop line conduit/spray ring because the flow of the fluid will change directions at the inlet of the loop line conduit/spray ring),

said spray ring (26) being arranged above the water surface (28) of the water in the slag water bath (see Fig. 1).

The examiner notes that the limitation contained in claims 1 and 9, which states "wherein the inlet flow direction has a component that is tangential to a loop-line flow direction of the wetting fluid" does not distinguish itself over the apparatus of Segerstrom. More specifically, because Applicant is claiming the "component" of the flow, it is the examiner's position that the shifting flow of Segerstrom when it enters the spray ring/loop circuit (26) from the vertical conduit pictured in Fig. 1 will indeed have a component of the flow that is tangential to the loop conduit flow direction.

Regarding claims 2 and 17, Segerstrom further discloses the loop conduit forms a peripheral ambit around an encompassed area (see Fig. 5 which illustrates a loop formed around a central area) and whereby the outlet openings are directed such that the outlet flow direction of the wetting fluid has a component directed inwardly towards the encompassed area (see Fig. 1 which illustrates the spray from the outlet openings is directed toward the central area).

Regarding claims 4, 16 and 19, Segerstrom further discloses the conduit (spray ring 26) forming the loop conduit has an internal cross sectional contour in a plane perpendicular to the loop-line flow direction that is free from a convex section (See Fig 2 which illustrates a circular cross section, which is free from a convex section).

Regarding claim 5, Segerstrom further discloses the loop conduit extends in a two-dimensional plane (see Fig. 5) and the inlet point is provided in the outer peripheral wall of the loop conduit (see Figs. 1 and 5 where the inlet conduit (not labeled) is the same

diameter of the loop conduit, which means that while the inlet conduit does not approach the loop circuit in the same plane (it is perpendicular), the inlet point does extend across the entire diameter of the loop circuit, including the outer peripheral wall).

Regarding claim 10, Segerstrom further discloses the reactor vessel is provided with an inlet port (see flange on right side of vessel in Fig. 1 which is fluidly connected to the spray ring 26) for connecting to a wetting fluid supply, whereby the inlet port is located gravitationally higher than the spray ring (see Fig. 1 where the inlet port is located above the spray ring 26), and wherein the inlet opening of the spray ring is connected to the inlet port via an internal supply conduit (see Fig. 1 where the vertical portion of the conduit is the internal supply conduit).

Regarding claim 11, Segerstrom further discloses the internal supply conduit extends exclusively non-horizontally (internal supply conduit is the vertical portion of the conduit pictured in Fig. 1 for feeding the spray ring with fluid).

Regarding claim 12, Segerstrom further discloses the internal supply conduit (vertical portion of the conduit connecting the inlet port to the spray ring) is connected to the inlet port via a distribution box (horizontal portion of the conduit in Fig. 1 is the distribution box), which distribution box is provided with an access port in a wall part (hole in vessel wall, see Fig. 1) opposite the 'internal' supply conduit (see Fig. 1) and essentially in line with the 'internal' supply conduit (see Fig. 1 where the inlet port, distribution box (horizontal portion of pipe) and internal supply conduit are in line with each other).

Regarding claim 18, Segerstrom further discloses the plurality of outlet openings are directed directly to the water surface (see Fig. 1 which illustrates the outlet openings direct water at the water surface 28).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Segerstrom (EP 0318071 A1) in view of Ellis (US 4,000,753).

Regarding claim 3, Segerstrom teaches removable nozzles (12) that comprise a threaded piece (see Fig. 3) to attach the nozzle to the spray ring (col. 4 lines 10-18). Segerstrom, however, does not explicitly disclose that the outlet openings comprise a flange to connect nozzles.

Ellis also discloses nozzles which are attached to a distribution means to inject water/fluid (see abstract).

Ellis teaches a nozzle (38) that comprises threads (54) for securing the nozzle to the distribution means (boss, 36). Ellis also teaches a flange (56) that is connected to the nozzle (see Fig. 3) and is bolted to the distribution means/boss (see Fig. 3). Ellis teaches such a configuration in order to provide a securing means so the nozzle does not inadvertently become loosened (col. 3 lines 10-16) as well as providing a means to prevent unauthorized removal of the nozzle (see abstract).

As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to add the nozzle flange of Ellis to the outlet nozzles of Segerstrom in order to provide a securing means so the nozzle does not inadvertently become loosened as well as providing a means to prevent unauthorized removal of the nozzle.

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Segerstrom (EP 0318071 A1).

Regarding claim 6, Segerstrom discloses a single inlet at a single inlet point wherein the inlet flow direction has a component that is tangential to the loop-line flow direction (as discussed above and illustrated in Fig. 1). Segerstrom does not explicitly disclose a plurality of inlets are provided in a plurality of inlet points. However, such a modification is nothing more than a duplication of system parts. A mere duplication of parts has no patentable significance unless a new and unexpected result is produced (see MPEP §2144.04 (VI) (B)). Furthermore, increasing the number of inlets to the loop

conduit would have been obvious to one of ordinary skill in the art at the time of the invention in order to increase the amount of coolant water that can be flowed through the spray ring of Segerstrom and increase the amount of cooling of the descending slag).

Response to Arguments

8. Applicant's arguments filed 10/22/2010 have been fully considered but they are not persuasive.

9. On page 2, 3rd paragraph, Applicant argues that Anderson does not teach an inlet to a spray ring being formed at a tangential angle to prevent accumulation of sediment within the spray ring. The examiner respectfully disagrees with this argument. Anderson clearly illustrates tangential inlets (125) to spray ring (126). Applicant states that the nozzles of Anderson form a thin film of water along the inner wall of the duct. The examiner notes, however, that such a feature still reads on the claims in their current form. In other words, the claims do not exclude the film forming function of Anderson.

10. On page 2, final paragraph, Applicant argues that Segerstrom does not teach a tangential component. The examiner respectfully disagrees with this argument. In the claim, Applicant does not claim that the inlet conduits are tangential to the loop ring, but rather that the flow direction is tangential to the loop ring. The examiner notes that such a limitation is directed toward a manner of operating the claimed apparatus and therefore does not distinguish the claim over the prior art (see MPEP §2114, §2115). Furthermore, even if such a limitation were given weight in the claim, the flow direction at the inlet will have multiple flow directions due to the

turbulence caused by fluid impinging on the loop ring. One of those directions will inherently be tangential to the loop.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW J. MERKLING whose telephone number is (571)272-9813. The examiner can normally be reached on M-F 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. J. M./
Examiner, Art Unit 1723

/Alexa D. Neckel/
Supervisory Patent Examiner, Art Unit 1723